

IN THE CLAIMS:

1-30. (Canceled)

31. (Currently amended) A transgenic fish selected from the group of zebrafish and medaka fish, said fish comprising a transgene that encodes a transgene product comprising an ablation promoting moiety, or a coupled expression system comprising an ablation promoting moiety, and a cellular reporter protein that facilitates detection of cells expressing the transgene product, wherein the ablation promoting moiety comprises at least one component of a pro-drug conversion system, and wherein the transgene product is operably linked to a regulatory DNA sequence, wherein the ablation promoting moiety includes at least one component of a pro-drug conversion system, and wherein the transgene including at least a promoter element that regulates the expression of the transgene product such that the transgene product is expressed in a reproducible spatial and temporal pattern in the fish.

32. (Canceled)

33. (Currently amended) The transgenic fish of Claim 31 wherein the regulatory DNA sequence is of homologous origin, being from the same species as that ~~[[is]]~~ of the transgenic fish.

34. (Currently amended) The transgenic fish of Claim 31 wherein the regulatory DNA sequence is of heterologous origin, being from a species ~~other than~~ that differs from that of the transgenic fish.

35. (Canceled)

36. (Previously presented) The transgenic fish of Claim 31 wherein the regulatory DNA sequence specifies cell specific expression of an encoded transgene product.

37-42. (Canceled)

43. (New) The transgenic fish of Claim 31 wherein the operably linked regulatory DNA sequence confers expression of a transgene encoded ablation promoting moiety, or a

transgene encoded ablation promoting moiety and coupled reporter, in cells, cell types, or tissues that are relevant to modeling specific diseases, disorders, or conditions believed to be causally linked to the loss, or functional compromise, of the cells, cell types, or tissues expressing the ablation promoting moiety.

44. (New) The transgenic fish of Claim 31 wherein the transgene encoded ablation promoting moiety or the transgene encoded ablation promoting moiety and coupled reporter is specifically expressed in at least one of muscle cells, glial cells, pancreatic cells, liver cells, kidney cells, vascular cells, neuronal cells, heart cells, cartilage cells, and bone cells.

45. (New) A transgenic fish selected from the group of zebrafish and medaka fish, said fish comprising a transgene that encodes a transgene product consisting of an ablation promoting moiety, or a coupled expression system consisting of an ablation promoting moiety and a cellular reporter protein that facilitates detection of cells expressing the transgene product, wherein the ablation promoting moiety includes at least one component of a pro-drug conversion system, and wherein the transgene product is operably linked to a minimal promoter element such that an enhancer trap strategy can be used to confer a reproducible spatial and temporal expression pattern to the transgene encoded product, whereby random integration of the transgene into the genome of the fish causes expression of the transgene product to come under the control of an enhancer element which by becoming operably linked to the transgene serves to promote expression of the encoded transgene product in a specific reproducible spatial and temporal pattern in the fish.

46. (New) The transgenic fish of Claim 45 wherein the operably linked enhancer element confers expression of a transgene encoded ablation promoting moiety, or a transgene encoded ablation promoting moiety and coupled reporter, in cells, cell types, or tissues that are relevant to modeling specific diseases, disorders, or conditions believed to be causally linked to the loss, or functional compromise, of the cells, cell types, or tissues expressing the ablation promoting moiety.

47. (New) The transgenic fish of Claim 45 wherein the transgene encoded ablation promoting moiety or the transgene encoded ablation promoting moiety and coupled reporter,

is specifically expressed in at least one of muscle cells, glial cells, pancreatic cells, liver cells, kidney cells, vascular cells, neuronal cells, heart cells, cartilage cells, and bone cells.

48. (New) A transgenic fish selected from the group of zebrafish and medaka fish, said fish comprising a transgene that encodes a transgene product consisting of an ablation promoting moiety, or a coupled expression system consisting of an ablation promoting moiety and a cellular reporter protein that facilitates detection of cells expressing the transgene product, wherein the ablation promoting moiety includes at least one component of a pro-drug conversion system, and wherein the transgene product is operably linked to a minimal promoter and an upstream activator sequence (UAS), the UAS being specifically bound by a given transcriptional activator, such that a modular binary expression system, made up of a transcriptional activator and a UAS-linked transgene product, can be used to confer a specific reproducible spatial and temporal expression pattern to the transgene encoded product, whereby the presence of the transcriptional activator is required for transcription of the UAS-linked transgene thereby regulating spatial and temporal expression of the UAS-linked transgene encoded product, and whereby the transcriptional activator acts *in cis*, being part of the transgene itself and being operably linked to its own regulatory DNA sequence including a promoter that confers a specific reproducible spatial and temporal expression pattern to the transcriptional activator and thereby to the UAS-linked transgene encoded product.

49. (New) The transgenic fish of Claim 48 wherein the operably linked regulatory DNA sequence confers expression of the transcriptional activator and thereby to the UAS-linked transgene encoded ablation promoting moiety, or the UAS-linked transgene encoded ablation promoting moiety and coupled reporter, in cells, cell types, or tissues that are relevant to modeling specific diseases, disorders, or conditions believed to be causally linked to the loss, or functional compromise, of the cells, cell types, or tissues expressing the ablation promoting moiety.

50. (New) The transgenic fish of Claim 48 wherein the UAS-linked transgene encoded ablation promoting moiety or the UAS-linked transgene encoded ablation promoting moiety and coupled reporter, is specifically expressed in at least one of muscle cells, glial

cells, pancreatic cells, liver cells, kidney cells, vascular cells, neuronal cells, heart cells, cartilage cells, and bone cells.

51. (New) A transgenic fish selected from the group of zebrafish and medaka fish, said fish comprising a transgene that encodes a transgene product consisting of an ablation promoting moiety, or a coupled expression system consisting of an ablation promoting moiety and a cellular reporter protein that facilitates detection of cells expressing the transgene product, wherein the ablation promoting moiety includes at least one component of a pro-drug conversion system, and wherein the transgene product is operably linked to a minimal promoter and an upstream activator sequence (UAS), the UAS being specifically bound by a given transcriptional activator, such that a modular binary expression system, made up of a transcriptional activator and a UAS-linked transgene product, can be used to confer a specific reproducible spatial and temporal expression pattern to the transgene encoded product, whereby the presence of the transcriptional activator is required for transcription of the UAS-linked transgene product thereby regulating the spatial and temporal expression pattern of the UAS-linked transgene encoded product, and whereby the transcriptional activator acts *in trans*, being separate from the transgene itself and acting by virtue of being brought into contact with the transgene, including by mating a transgenic fish expressing a transcriptional activator to the transgenic fish encoding the UAS-linked transgene product, whereby a single UAS-linked transgenic line can be mated to different transcriptional activator-expressing lines in order to facilitate a wide variety of expression patterns of the UAS-linked transgene encoded product.